

Remarks

Claims 1-14, 16-52, 64-74 are pending in the present application and are rejected.

Claims 15 and 53-63 are cancelled.

New claims 75-79 are presented for examination.

Claim 18 is amended to insert “the alcohol” before “having Formula R₁-OH.” Claim 19 is amended to include the limitation “wherein the ethoxylate of an alcohol and the one surfactant that is different than component A are in a sufficient amount that an exterior wall of an aluminum can cleaned by the cleaning solution is such that the percent of total surface area of the exterior wall which supports a continuous film of water is greater than 50%.” Claim 27 is amended to recite the limitation on the composition as “wherein the ethoxylate of an alcohol and the one surfactant that is different than component A are in a sufficient amount that the cloud point of a working composition of the cleaning composition is greater than about 125° F .” Claim 64 is amended to recite the limitation on the composition as “wherein the ethoxylate of an alcohol and the at least one surfactant that is different than component A are in a sufficient amount that the cleaning composition has an average water-break-free percent reduction of less than 50 % after 7 days aging.”

1. Rejection of Claim 18 Under 35 U.S.C. § 112

Claim 18 is rejected under 35 U.S.C. § 112, second paragraph.

Applicants have amended claim 18 to insert “the alcohol” before “having Formula R₁-OH” as urged by the Examiner. Accordingly, the rejection of claim 18 is rejected under 35 U.S.C. § 112, second paragraph is now moot.

**2. Rejection Of Claims 1-4, 7, 9, 16, 17, 19, 20, 24,
26-29, 33 and 35 Under 35 U.S.C. § 103(a)**

Claims 1-4, 7, 9, 16, 17, 19, 20, 24, 26-29, 33 and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Bershas et al. (U.S. Patent No. 5,476,601).

Independent claims 1, 19, and 27 limit the present invention to specific pH ranges that are particularly useful for cleaning applications. Specifically, claim 1 requires that the inorganic pH adjusting component is "present in an amount such that the pH of the cleaning composition is less than 2." Independent claims 19 and 27 require that the inorganic pH adjusting component is "present in an amount such that the pH of the cleaning composition is less than 2 or between 9 and 13."

Bershas et al. discloses lubricant and surface conditioner compositions that are different than the cleaning solutions of the present invention. The Examiner states in support of the present rejection:

Bershas teaches a lubricant and surface conditioner forming component in deionized water, comprising of about 1% active organic (I), about 0.2% inorganic (II) and about 0.5% surfactant (III) (see col. 18, lines 60-67), wherein (I) is oleyl [POE(15)] ammonium chloride, (II) is Fe₂(SO₄)₃, and (III) is Neodol 25-9 (a C12-15 ethoxylated alcohol having 9 moles ethoxylate group) having pH of 2.0 (see Table 7, cols. 21-22, see Example Type A; second named component). **Bershas also teaches that the treatment composition which comprises the lubricant and surface conditioner would generally have a pH that is between about 1 and about 6.5** (see col. 13, lines 3-9).

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The relevant passage from Bershas relied upon by the Examiner is reproduced below for convenience:

Generally, in the cleaning process of the cans, after the cans have been washed, they are typically exposed to an acidic water rinse. In accordance with this invention, the cans may thereafter be treated with a lubricant and surface conditioner comprising an anionic surfactant such as a phosphate acid ester. The pH of the treatment composition is important and generally should be acidic, that is between about 1 and about 6.5, preferably between about 2.5 and about 5. If the cans are not treated with the lubricant and surface conditioner of this invention next after the acidic water rinse, the cans are often exposed to a tap water rinse and then to a deionized water rinse. In such event, the deionized water rinse solution is prepared to contain the lubricant and surface conditioner of this invention, which may comprise a nonionic surfactant selected from the aforementioned polyoxyethylated alcohols or polyoxyethylated fatty acids, or any of the other suitable materials as described above. After such treatment, the cans may be passed to an oven for drying prior to further processing.

Bershaw et al., col. 13, ll. 1-20.

Bershaw discloses two distinct routes that the cans may take after being washed, which are highlighted differently to provide clarity. The Examiner has mixed components between these two routes together in attempting to reconstruct the present invention. The first route uses a lubricant and surface conditioner with an anionic surfactant, wherein the pH is between 1 and 6.5. The second route includes treatment of the cans with tap water and then deionized water.

The lubricant and surface treatment route is underlined in the cited passage. The lubricant and surface conditioner used in this route (i.e., the route with a pH between 1 and 6.5) **does not include a nonionic surfactant** like the ethoxylate of an alcohol where the alcohol has formula: R₁-OH. Bershaw states that the pH of the treatment composition for the first route is important and should generally be acidic between about 1 and 6.5. This first route is recognized by one skilled in the art as a surface conditioning step in which a reactive coating is formed on the surface of the can. Moreover, a nonionic surfactant would not be added to such reactive composition. The idea behind this aspect of the Bershaw reference is that surface conditioning makes the outside of cans slippery. Typically, after an aluminum can is cleaned, the coefficient of friction is high due to the formation of aluminum oxide.

Accordingly, freshly cleaned aluminum cans are not able to slide against themselves. The Bershas lubricant and surface condition formulation is applied after the can is cleaned so that there will be a chemically modified surface on the can that will be lubricious and incapable of being rinsed off in subsequent rinse stages.

The alternative second route (bolded in the cited passage) utilizes tap water and deionized water rinses. Bershas states that the deionized water includes the lubricant and surface conditioner. It includes this composition, but it is not identical to it since it is described as a deionized water rinse. Necessarily, the pH of the deionized water rinse will not be the same as the pH of the pure lubricant and surface treatment formulation. It must be less acidic. It is this deionized water rinse that Bershas describes as optionally including a non-ionic surfactant, not the formulation with the pH between 1 and 6.5 of this invention (which may comprise a nonionic surfactant).

After manipulating the teachings of Bershas, the Examiner concludes that the Bershas lubricating composition may be used to clean aluminum cans:

The composition of Bershas should be able to clean the exterior surface of an aluminum can such that the percent of total surface area of the exterior wall which supports a continuous film of water is great than 50% after the aluminum can is cleaned. . .

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This conclusion is impossible. The Bershas composition is designed for lubrication. Lubricants linger on surfaces or leave residues on surfaces or chemically modify surfaces so that the surfaces can slide past each other easily. This kind of surface treatment is not compatible with cleaning a surface as in the present invention. Therefore, the differences between the present invention and Bershas, are more significant than the Examiner has appreciated thus far.

It is also revealing that not a single example in Table 7 of Bershas et al. provide a pH lower than 2. Even if the Examiner's interpretation of Bershas is correct regarding disclosure of a pH range between 1 and 6.5, the narrower ranges disclosed in the present invention as used in the present invention are allowable under MPEP §2131.03. It should be appreciated that the ability of any particular composition to meet the limitations of the present invention are not predictable. The results provided in the Specification in Tables 1-7 clarify this point since there are many compositions that do not provide compositions suitable for cleaning aluminum cans.

The Examiner dismisses the significance of the limitations on the compositions of independent claims 1, 19, and 27. Claim 1 requires a composition having "an average water-break-free percent reduction of less than 50% after 7 days aging." Applicants have amended claims 19 and 27 to clarify that the properties of the cleaning composition are a function of the type and amounts of the ingredients. Claim 19 is amended to include the limitation "wherein the ethoxylate of an alcohol and the one surfactant that is different than component A are in a sufficient amount that an exterior wall of an aluminum can cleaned by the cleaning solution is such that the percent of total surface area of the exterior wall which supports a continuous film of water is greater than 50%." Claim 27 is amended to recite the limitation on the composition as "wherein the ethoxylate of an alcohol and the one surfactant that is different than component A are in a sufficient amount that the cloud point of a working composition of the cleaning composition is greater than about 125° F ."

These limitations are not intended use as the Examiner suggests. Instead, these are properties of the cleaning compositions composition just like "melting point" is a property of a crystal. The requirements of amended claims 19 and 27 clarify that these are properties that are set by the ingredients and as such represent limitations on the surfactants. These limitations are the properties by which those skilled in the art characterize cleaning compositions. The Bershas reference fails to provide a teaching of setting these ingredients to obtain the cleaning properties of the present invention. Moreover, the results provided in Tables 1-7 of the present invention illustrates the sporadic distribution of useful compositions.

The development of such useful compositions by optimization is not feasible due to this sporadic nature in that minor adjustment does not necessarily improve the composition. Accordingly, Claims 1-4, 7, 9, 16, 17, 19, 20, 24, 26-29, 33 and 35 are allowable under 35 U.S.C. § 103(a) over Bershas et al.

Accordingly, for at least these reasons, claims 1-4, 7, 9, 16, 17, 19, 20, 24, 26-29, 33 and 35 are allowable under 35 U.S.C. § 103(a) over Bershas et al. (U.S. Patent No. 5,476,601).

2. Rejection Of Claims 1-4, 7, 9, 16, 17, 19, 20, 24, 26-29, 33 And 35 Under 35 U.S.C. § 103(a)

Claims 1-4, 7, 9, 16, 17, 19, 20, 24, 26-29, 33 and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Banaszak et al. (U.S. Patent No. 5,584,943).

Banaszak et al. also does not teach cleaning compositions having the pH ranges of independent claims 1, 17, 26, 36, and 45. Table 5 of Banaszak et al. shows compositions with pH values from 2 to 6 which are clearly not less "than 2" or "from 9 to 13." It should also be appreciated that claim 1 states "less than 2" and not "less than about 2." This limitation should be interpreted to mean what it says.

As set forth above in connection with the Bershas rejection, Banaszak also fails to appreciate the significance of the average water-break-free percent, the supporting of a continuous film of water, or the cloud point. Applicants' amendments of claims 19 and 27 which require that the amounts of the surfactant be set preempts the Examiner's assertions regarding intended use. Instead, these limitations are properties of the cleaning compositions composition just like "melting point" is a property of a crystal. The Banaszak reference fails to provide a teaching of setting these ingredients to obtain the cleaning properties of the present invention. Moreover, the results provided in Tables 1-7 of the present invention illustrates the sporadic distribution of useful compositions. The development of such useful compositions

by optimization is not feasible due to this sporadic nature in that minor adjustment does not necessarily improve the composition

In maintaining the present rejection, the Examiner again utilizes a lubricating composition. As set forth above, such compositions do not clean surfaces. The Examiner's failure to appreciate the differences between the present invention and lubricating compositions leads to the illogical conclusion that the lubricants of Banaszak et al. may be used as cleaning solutions.

Accordingly, for at least these reasons, claims 1-4, 7, 9, 16, 17, 19, 20, 24, 26-29, 33 and 35 are allowable under 35 U.S.C. § 102(b) over Banaszak et al.

3. Rejection Of Claims 1-14 And 16-52, 64-74 Under 35 U.S.C. § 103(a)

Claims 1-14 and 16-52, 64-74 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Li et al. (U.S. Patent No. 6,214,777).

Applicants respectfully traverse the present rejection for the reasons set forth below. Li et al. does not provide compositions that utilize the same chemical species used in the present invention. The Examiner admits structural differences:

Li, however, **fails to specifically disclose a composition wherein the linear alcohol ethoxylate has an alkyl group and ethoxy group as those recited**, the water-break-free percent reduction; and cloud point and pH of the composition as those recited.

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The above admission that Li et al. fails to disclose "linear alcohol ethoxylate has an alkyl group and ethoxy group as those recited" in the present application is sufficient for this

rejection to fail. The Federal Circuit has recently explained obviousness in the context of structure differences in chemical species:

We elaborated on this requirement in the case of *In re Deuel*, 51 F.3d 1552, 1558 (Fed. Cir. 1995), where we stated that “[n]ormally a *prima facie* case of obviousness is based upon structural similarity, i.e., an established structural relationship between a prior art compound and the claimed compound.” That is so because close or established “[s]tructural relationships may provide the requisite motivation or suggestion to modify known compounds to obtain new compounds.” *Id.* A known compound may suggest its homolog, analog, or isomer because such compounds “often have similar properties and therefore chemists of ordinary skill would ordinarily contemplate making them to try to obtain compounds with improved properties.” *Id.* We clarified, however, that in order to find a *prima facie* case of unpatentability in such instances, a showing that the “prior art would have suggested making the specific molecular modifications necessary to achieve the claimed invention” was also required. *Id.* (citing *In re Jones*, 958 F.2d 347 (Fed. Cir. 1992); *Dillon*, 919 F.2d 688; *Grabiak*, 769 F.2d 729; *In re Lalu*, 747 F.2d 703 (Fed. Cir. 1984)).

Takeda Chem. Indus., Ltd. v. Alphapharm Pty., Ltd. , June 28, 06-1329, 2007(Fed. Cir. 2007).

In *Takeda*, the Federal Circuit upheld its earlier holdings regarding the obviousness of structural differences post KSR. In order for an obviousness rejection to be made, there must be “prior art would have suggested making the specific molecular modifications necessary to achieve the claimed invention.”

The Examiner attempts to dismiss this serious deficiency of Li et al. by stating that “it has been held obvious to select a value in a known range by optimization for the best results.” This assertion is contrary to the holding of *Takeda*. The limitation in dispute is “wherein R₁ is a saturated or unsaturated, straight-chain or branched alkyl having from 14 to 80 carbon atoms.” Clearly, the size of the R1 group is a structural limitation. Where is the

suggestion to choose a particular R1 group to form a cleaning solution having the requisite average water-break-free percent or the cloud point of the present invention?

Moreover, the limitation regarding R1 is not a limitation that can be merely varied for optimization purposes.

Independent claims 1, 19, 27, and 64 are further allowable for similar reasons set forth above regarding Bershas. Li et. al only discloses lubricating compositions. Again, claims 1, 19, and 27 include the following cleaning solution specific limitations - “the cleaning composition has an average water-break-free percent reduction of less than 50% after 7 days aging” in claim 1, “the cleaning composition is capable of cleaning an exterior wall of an aluminum can such that the percent of total surface area of the exterior wall which supports a continuous film of water is greater than 50% after the aluminum can is cleaned with the cleaning composition” in claim 19, and “the cloud point of a working composition of the cleaning composition is greater than about 125° F” in claim 27.

As set forth above in connection with the Bershas rejection, Li et al. also fails to appreciate the significance of the average water-break-free percent, the supporting of a continuous film of water, or the cloud point. Applicants’ amendments of claims 19 and 27 which require that the amounts of the surfactant be set preempts the Examiner’s assertions regarding intended use. Instead, these limitations are properties of the cleaning compositions composition just like “melting point” is a property of a crystal. The Li et al. reference fails to provide a teaching of setting these ingredients to obtain the cleaning properties of the present invention. Moreover, the results provided in Tables 1-7 of the present invention illustrates the sporadic distribution of useful compositions. The development of such useful compositions by optimization is not feasible due to this sporadic nature in that minor adjustment does not necessarily improve the composition.

Accordingly, claims 1-14 and 16-52, 64-74 are allowable under 35 U.S.C. § 103(a) over Li et al.

**4. Rejection of Claims 19-22, 25-31, 34-41,
44-48, 51-52, 64-74 Under 35 U.S.C. § 103(a)**

Claims 19-22, 25-31, 34-41, 44-48, 51-52, 64-74 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Carlson et al. (U.S. Patent No. 6,328,816).

As set forth above in connection with the Bershas rejection, Carlson et al. also fails to appreciate the significance of the average water-break-free percent, the supporting of a continuous film of water, or the cloud point. Applicants' amendments of claims 19 and 27 which require that the amounts of the surfactant be set preempts the Examiner's assertions regarding intended use. Instead, these limitations are properties of the cleaning compositions composition just like "melting point" is a property of a crystal. The Carlson et al. reference fails to provide a teaching of setting these ingredients to obtain the cleaning properties of the present invention.

The Examiner states that the range for the alcohol having Formula I : R₁-OH, can be determined by optimization. As set forth above, the results provided in Tables 1-7 of the present invention illustrates the sporadic distribution of useful compositions. The development of such useful compositions by optimization is not feasible due to this sporadic nature in that minor adjustment does not necessarily improve the composition. Moreover, each distinct choice for R1 is a different structure.

Accordingly, claims 19-22, 25-31, 34-41, 44-48, 51-52, 64-74 are allowable under 35 U.S.C. § 103(a) over Carlson et al.

5. Rejection Of Claims 19-52, 64-74 Under 35 U.S.C. § 103(a)

Claims 19-52, 64-74 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Cardola et al. (WO 00/12661).

As set forth above in connection with the Bershas rejection, Cardola et al. also fails to appreciate the significance of the average water-break-free percent, the supporting of a continuous film of water, or the cloud point. Applicants' amendments of claims 19 and 27 which require that the amounts of the surfactant be set preempts the Examiner's assertions regarding intended use. Instead, these limitations are properties of the cleaning compositions composition just like "melting point" is a property of a crystal. The Cardola et al. reference fails to provide a teaching of setting these ingredients to obtain the cleaning properties of the present invention.

The Examiner states that the range for the alcohol having Formula I : R₁-OH, can be determined by optimization. As set forth above, the results provided in Tables 1-7 of the present invention illustrates the sporadic distribution of useful compositions. The development of such useful compositions by optimization is not feasible due to this sporadic nature in that minor adjustment does not necessarily improve the composition. Moreover, each distinct choice for R1 is a different structure.

Accordingly, claims 19-52, 64-74 are allowable under 35 U.S.C. § 103(a) over Cardola et al.

Conclusion

Applicants have made a genuine effort to respond to each of the Examiner's objections and rejections in advancing the prosecution of this case. Applicants believe that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If any additional issues need to be resolved, the Examiner is invited to contact the undersigned at his earliest convenience.

The fee for the two month extension of time in the amount of \$460.00 is being filed electronically herewith. Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,
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